

WHAT IS CLAIMED IS:

1. A phase-shift RF-signal generating circuit, for generating a first phase-shift RF signal, a second phase-shift RF signal, a third phase-shift RF signal, and a fourth phase-shift RF signal for testing DVD ROM chipset based on a digital input signal that is frequency-variant, the phase-shift RF-signal generating circuit comprising:

a first signal potential divider, wherein the digital input signal is received, voltage divided, and output;

a first high pass filter, coupling to the first signal potential divider, wherein the dc composition of the digital input signal that is voltage divided is eliminated in order to generate the first phase-shift RF signal;

a second high pass filter, coupling to the first signal potential divider, wherein the dc composition of the digital input signal that is voltage divided is eliminated in order to generate the second phase-shift RF signal;

a phase shifter, wherein the digital input signal is received, shifted by a phase and output;

a second signal potential divider, coupling to the phase-shifter, wherein the digital input signal that is phase shifted is received, voltage divided, and output;

a third high pass filter, coupling to the second signal potential divider, wherein the dc composition of the digital input signal that is phase shifted and voltage divided is eliminated in order to generate the third phase-shift RF signal; and

a fourth high pass filter, coupling to the second signal potential divider, wherein the dc composition of the digital input signal that is phase shifted and voltage divided is eliminated in order to generate the fourth phase-shift RF signal.

2. The phase-shift RF-signal generating circuit as recited in claim 1, wherein each of the first signal potential divider and the second signal potential divider comprises two resistors in series.

3. The phase-shift RF-signal generating circuit as recited in claim 1, wherein each of the first high pass filter, the second high pass filter, the third high pass filter, and the fourth high pass filter comprises a capacitor.

4. The phase-shift RF-signal generating circuit as recited in claim 1, wherein the phase shifter comprises:

an operating amplifier, comprising a positive input terminal, a negative input terminal, and an output terminal, wherein the output terminal is to output the digital input signal that is phase shifted;

a first resistor, wherein one end of the first resistor couples to the digital input signal, and the other end couples to the positive input terminal;

a capacitor, wherein one end of the capacitor couples to the positive input terminal, and the other end is grounded;

a second resistor, wherein one end of the second resistor couples to the digital input signal, and the other end couples to the negative input terminal; and

a third resistor, wherein one end of the third resistor couples to the negative input terminal and the other end couples to the output terminal.

5. The phase-shift RF-signal generating circuit as recited in claim 4, wherein the second resistor and the third resistor have identical resistance.

6. The phase-shift RF-signal generating circuit as recited in claim 1, wherein the phase shifter possess voltage gain of ONE, and phase shift of  $40^\circ$ .

7. The phase-shift RF-signal generating circuit as recited in claim 1, wherein the first phase-shift RF signal, the second phase-shift RF signal, the third phase-shift RF signal, and the fourth phase-shift RF signal have peak-to-peak value of 75mV and frequency of 5MHz.

5        8. A DVD ROM chipset testing board for undergoing high temperature operating life testing to a DVD ROM chipset, the DVD ROM chipset testing board comprises:

        a testing base, having at least one chipset socket for plugging the DVD ROM chipset, and a connector for coupling to a testing device of the DVD ROM chipset, wherein the testing device provides a digital input signal varied with a frequency; and

10        a phase-shift RF-signal generating circuit, according to the digital input signal, for generating a first phase-shift RF signal, a second phase-shift RF signal, a third phase-shift RF signal, and a fourth phase-shift RF signal for testing the DVD ROM chipset, wherein the first phase-shift RF signal and the second phase-shift RF signal are in phase, and are differed by a phase shift from the third phase-shift RF signal and the  
15        fourth phase-shift RF signal.

9. The DVD ROM testing board as recited in claim 8, wherein the phase-shift RF-signal generating circuit comprises:

        a first signal potential divider, wherein the digital input signal is received, voltage divided, and output;

20        a first high pass filter, coupling to the first signal potential divider, wherein the dc composition of the digital input signal that is voltage divided is eliminated in order to generate the first phase-shift RF signal;

a second high pass filter, coupling to the first signal potential divider, wherein the dc composition of the digital input signal that is voltage divided is eliminated in order to generate the second phase-shift RF signal;

a phase shifter, wherein the digital input signal is received, shifted by a phase and  
5 output;

a second signal potential divider, coupling to the phase-shifter, wherein the digital input signal that is phase shifted is received, voltage divided, and output;

a third high pass filter, coupling to the second signal potential divider, wherein the dc composition of the digital input signal that is phase shifted and voltage divided is  
10 eliminated in order to generate the third phase-shift RF signal; and

a fourth high pass filter, coupling to the second signal potential divider, wherein the dc composition of the digital input signal that is phase shifted and voltage divided is eliminated in order to generate the fourth phase-shift RF signal.

10. The DVD ROM testing board as recited in claim 9, wherein each of the first signal potential divider and the second signal potential divider comprises two resistors in series.

11. The DVD ROM testing board as recited in claim 9, wherein each of the first high pass filter, the second high pass filter, the third high pass filter, and the fourth high pass filter comprises a capacitor.

20 12. The DVD ROM testing board as recited in claim 9 wherein the phase shifter comprises:

an operating amplifier, comprising a positive input terminal, a negative input terminal, and an output terminal, wherein the output terminal is to output the digital input signal that is phase shifted;

5 a first resistor, wherein one end of the first resistor couples to the digital input signal, and the other end couples to the positive input terminal;

a capacitor, wherein one end of the capacitor couples to the positive input terminal, and the other end is grounded;

a second resistor, wherein one end of the second resistor couples to the digital input signal, and the other end couples to the negative input terminal; and

10 a third resistor, wherein one end of the third resistor couples to the negative input terminal and the other end couples to the output terminal.

13. The DVD ROM testing board as recited in claim 12, wherein the second resistor and the third resistor have identical resistance.

15 14. The DVD ROM testing board as recited in claim 9, wherein the phase shifter possesses voltage gain of 1, and phase shift of  $40^\circ$ .

15. The DVD ROM testing board as recited in claim 9, wherein the first phase-shift RF signal, the second phase-shift RF signal, the third phase-shift RF signal, and the fourth phase-shift RF signal have peak-to-peak value of 75mV and frequency of 5MHz.

20 16. A phase-shift RF-signal generating method for generating a first phase-shift RF signal, a second phase-shift RF signal, a third phase-shift RF signal, and a fourth phase-shift RF signal for testing DVD ROM chipset based on a digital input signal that is frequency-variant, the phase-shift RF-signal generating method comprising:

receiving, voltage dividing, and outputting the digital input signal;

eliminating the dc composition of the digital input signal that is voltage divided in order to generate the first phase-shift RF signal and the second phase-shift RF signal;

phase shifting and outputting the digital input signal;

receiving, voltage dividing, and outputting the digital input signal that is divided;

5 and

eliminating the dc composition of the digital input signal that is phase shifted and voltage divided in order to generate the third phase-shift RF signal and the fourth phase-shift RF signal.

17. The phase-shift RF-signal generating method as recited in claim 16, wherein the  
10 phase shifted is  $40^\circ$ .

18. The phase-shift RF-signal generating method as recited in claim 16, wherein the first phase-shift RF signal, the second phase-shift RF signal, the third phase-shift RF signal, and the fourth phase-shift RF signal have peak-to-peak value of 75mV and frequency of 5MHz.